

WHAT IS CLAIMED IS:

1. A brake rotor comprising:
 - a central mounting portion for mounting the brake rotor on a hub;
 - a first annular braking surface and a second annular braking surface, wherein each braking surface includes an inner diameter and an outer diameter;
 - a bridge provided between the central mounting portion and the inner diameter of at least one of the first and the annular braking surfaces; and
 - a plurality of ribs positioned proximate to the bridge.
2. The brake rotor according to claim 1, wherein the bridge is substantially solid and wherein at least a portion of at least one rib protrudes above a surface of the bridge.
3. The brake rotor according to claim 1, wherein the bridge includes a plurality of openings.
4. The brake rotor according to claim 3, wherein the plurality of ribs are flush with one or both of the first and the second annular braking surfaces.
5. The brake rotor according to claim 1, wherein at least one of the plurality of the ribs are integral to a side of a flow channel of a vented brake rotor.
6. The brake rotor according to claim 1, wherein either or both of the annular braking surfaces includes one or more slots.
7. The brake rotor according to claim 1, further comprising one or more pairs of openings, each pair of openings allowing communication between the first annular braking surface and the second annular braking surface.
8. The rotor according to claim 1, further comprising a hat portion disposed in the central portion and adapted for mounting the rotor to a vehicle;
9. The rotor according to claim 1, wherein the first opening allows the first annular surface to fluid communicate with a vent.

10. The rotor according to claim 1, wherein the central mounting portion comprises a hat having a plurality of openings for receiving fasteners from the hub, or a plurality of fasteners for fastening a wheel to the hub and rotor combination.
11. The rotor according to claim 1, further comprising a cover for covering all or a portion of the bridge.
12. The rotor according to claim 11, wherein the cover comprises a circular piece of material having a central opening corresponding in size to the central mounting portion of the rotor, wherein upon mounting of the cover onto the rotor, the central opening receives the central mounting portion of the rotor.
13. The rotor according to claim 12, wherein the cover includes a plurality of fastening openings for receiving fasteners for fastening the cover to the rotor.
14. A brake rotor comprising:
 - a central mounting portion for mounting the brake rotor onto a hub;
 - a first annular braking surface and a second annular braking surface, wherein each braking surface includes an inner diameter and an outer diameter;
 - a plurality of flow channels provided between the first annular braking surface and the second annular braking surface;
 - a bridge provided between the central mounting portion and the inner diameter of at least one of the first and the annular braking surfaces; and
 - a plurality of ribs positioned proximate to the bridge.
15. The brake rotor according to claim 14, wherein each flow channel includes at least one wall.
16. The brake rotor according to claim 15, wherein the at least one wall comprises one of the plurality of ribs.
17. The brake rotor according to claim 14, wherein at least one of the plurality of ribs extend above a surface of the bridge.

18. The brake rotor according to claim 14, further comprising a plurality of openings positioned in the bridge.
19. The rotor according to claim 14, further comprising a cover for covering all or a portion of the bridge.
20. The rotor according to claim 19, wherein the cover comprises a circular piece of material having a central opening corresponding in size to the central mounting portion of the rotor, wherein upon mounting of the cover onto the rotor, the central opening receives the central mounting portion of the rotor.
21. The rotor according to claim 20, wherein the cover includes a plurality of fastening openings for receiving fasteners for fastening the cover to the rotor.
22. A braking system comprising:
 - a caliper;
 - a brake rotor comprising:
 - having a central mounting portion for mounting the brake rotor on a hub;
 - a first annular braking surface and a second annular braking surface, wherein each braking surface includes an inner diameter and an outer diameter;
 - a bridge provided between the central mounting portion and the inner diameter of at least one of the first and the annular braking surfaces; and
 - a plurality of ribs positioned proximate to the bridge; and
 - a pair of braking pads.
23. The braking system according to claim 22, further comprising a cover for covering all or a portion of the bridge.
24. The braking system according to claim 23, wherein the cover comprises a circular piece of material having a central opening corresponding in size to the central

mounting portion of the rotor, wherein upon mounting of the cover onto the rotor, the central opening receives the central mounting portion of the rotor.

25. The braking system according to claim 24, wherein the cover includes a plurality of fastening openings for receiving fasteners for fastening the cover to the rotor.

26. A vehicle comprising:

a braking system including a rotor, wherein the rotor comprises:

a central mounting portion for mounting the brake rotor on a hub;

a first annular braking surface and a second annular braking surface, wherein each braking surface includes an inner diameter and an outer diameter;

a bridge provided between the central mounting portion and the inner diameter of at least one of the first and the annular braking surfaces; and

a plurality of ribs positioned proximate to the bridge.

27. The vehicle according to claim 26, further comprising a cover for covering all or a portion of the bridge.

28. The vehicle according to claim 27, wherein the cover comprises a circular piece of material having a central opening corresponding in size to the central mounting portion of the rotor, wherein upon mounting of the cover onto the rotor, the central opening receives the central mounting portion of the rotor.

29. The vehicle according to claim 28, wherein the cover includes a plurality of fastening openings for receiving fasteners for fastening the cover to the rotor.